

US EPA ARCHIVE DOCUMENT



ENGINEERS & CONSULTANTS

**Paul C. Rizzo Associates, Inc.**  
CORPORATE HEADQUARTERS - PITTSBURGH  
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Phone (412) 856-9700 • Fax (412) 856-9749  
[www.rizzoassoc.com](http://www.rizzoassoc.com)

September 11, 2009  
Project No. 09-4157

Mr. Dennis Miller  
Lockheed Martin  
2890 Woodbridge Ave #209  
Edison, NJ 08837

**TRANSMITTAL**  
**ASSESSMENT OF DAM SAFETY OF**  
**COAL COMBUSTION SURFACE IMPOUNDMENTS**  
**FIELD ASSESSMENT CHECKLISTS FOR**  
**SITES 24 (MITCHELL) AND 30 (BRUCE MANSFIELD)**

Dear Mr. Miller:

Transmitted herewith are copies of the Field Assessment Checklists for the inspections of the management units located at Sites 24 and 30.

If you have any questions or require any additional information, please contact me at (412) 856-9700, ext. 1008, or [john.osterle@rizzoassoc.com](mailto:john.osterle@rizzoassoc.com).

Respectfully submitted,  
***Paul C. Rizzo Associates, Inc.***

John P. Osterle, P.E.  
Vice President  
Dam & Water Resource Projects

JPO/KRC/lck/kef

cc: Stephen Hoffman – USEPA

U.S. OFFICE LOCATIONS

•Monroeville PA (Corp.HQ)•Oakland CA•St.Louis MO•Tarrytown NY•Columbia SC•

INTERNATIONAL OFFICE LOCATIONS

•Buenos Aires Argentina•Mendoza Argentina•Santiago Chile•Lima Peru•  
•Abu Dhabi UAE•Brisbane Australia•Plzen Czech Republic•St. Petersburg Russia•



Site Name: Bruce Mansfield Power Station	Date: 09-01-2009
Unit Name: South Low Dissolved Solids (LDS) Pond	Operator's Name: First Energy
Unit I.D.: NA	Hazard Potential Classification: High <input type="checkbox"/> Significant <input checked="" type="checkbox"/> Low <input type="checkbox"/>
Inspector's Name: John Osterle / Kevin Cass	

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?		Quarterly	18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?		760 ft	19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?		NA	20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?		759.5± ft	Is water entering inlet, but not exiting outlet?		NA
5. Lowest dam crest elevation (operator records)?		762 ft	Is water exiting outlet, but not entering inlet?		NA
6. If instrumentation is present, are readings recorded (operator records)?		NA	Is water exiting outlet flowing clear?		NA
7. Is the embankment currently under construction?		X	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation, stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?		X
9. Trees growing on embankment? (If so, indicate largest diameter below)		X	At isolated points on embankment slopes?		X
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?	X		From downstream foundation area?		X
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		NA
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?		X
17. Cracks or scarps on slopes?		X	24. Were Photos taken during the dam inspection?	X	

**Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.**

Inspection Issue #

Comments

- #1. Quarterly inspection is performed by GAI Consultants, Inc. Fourth quarter inspection includes summary for entire year. PADEP performs an inspection every 2 years.
- #2. Daily water level readings are recorded by operations department for LDS ponds only.
- #3. The decant pipe and intake structure has been deactivated (18" dia. vitrified clay pipe).
- #4. Spillway consists of a weir which flows between the North LDS Pond and the South LDS Pond. One pond is always drained so that it can store discharge from the other pond. Water is discharged from the pond via pumping.
- #6. No instrumentation.
- #8. According to First Energy, the foundations were excavated to rock. Ponds were constructed prior to the operation of the plant. Therefore, there was no fly ash available during construction.
- #10 & #17. Minor cracks were observed in the top asphalt layer. These cracks do not extend into the bottom asphalt layer or the embankment.

**Coal Combustion Waste (CCW)  
Impoundment Inspection**Impoundment NPDES Permit # NA  
Date 09-01-2009INSPECTOR John Osterle / Kevin CassImpoundment Name South Low Dissolved Solids (LDS) Pond  
Impoundment Company First Energy  
EPA Region III  
State Agency (Field Office) Addresss Pennsylvania Department of Environmental Protection  
909 Elmerton Avenue, Harrisburg, PA 17110Name of Impoundment \_\_\_\_\_  
(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)New \_\_\_\_\_ Update X

Is impoundment currently under construction?

YesNoX

Is water or ccw currently being pumped into the impoundment?

YesNoX**IMPOUNDMENT FUNCTION:** Primary: Ash Storage, Secondary: Sedimentation, Tertiary: WasteNearest Downstream Town : Name Midland, PADistance from the impoundment about 2 miles downstream

Impoundment

Location: Longitude 40 Degrees 38 Minutes 9.73 Seconds  
Latitude 80 Degrees 24 Minutes 45.24 Seconds  
State PA County BeaverDoes a state agency regulate this impoundment? YES X NO \_\_\_\_\_If So Which State Agency? Pennsylvania Department of Environmental Protection, Bureau of  
Waterways Engineering, Division of Dam Safety.

**HAZARD POTENTIAL** (In the event the impoundment should fail, the following would occur):

\_\_\_\_\_ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

**\_\_\_\_\_ LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

**× SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

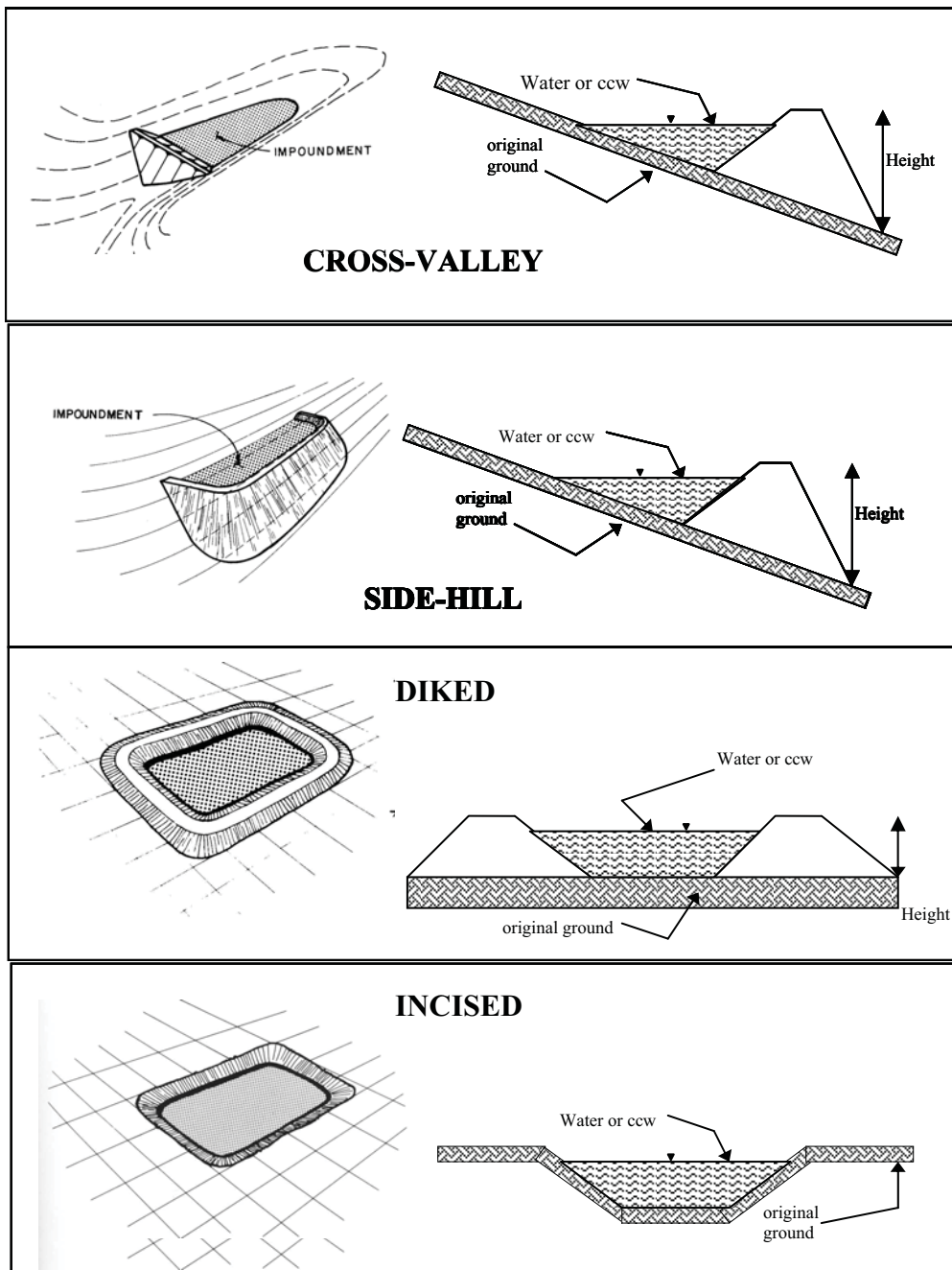
**HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

**DESCRIBE REASONING FOR HAZARD RATING CHOSEN:**

Refer to State classification of C-2, High hazard Structure per PA-DEP letter (August 18, 1994) and 25PaCode105.91 Classification of Dams and Reservoirs. State's classification is equivalent to the Environmental Protection Agency's (EPA) Significant Hazard rating.

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# **CONFIGURATION:**

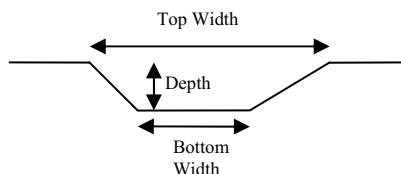


<input type="checkbox"/>	Cross-Valley		
<input checked="" type="checkbox"/>	Side-Hill		
<input type="checkbox"/>	Diked		
<input type="checkbox"/>	Incised (form completion optional)		
<input type="checkbox"/>	Combination Incised/Diked		
Embankment Height	17	feet	Embankment Material <small>Soil with asphalt on crest and downstream slope</small>
Pool Area	3.1	acres	Liner <small>Asphlat</small>
Current Freeboard	2	feet	Liner Permeability <small>10<sup>-7</sup> cm/s (estimated)</small>

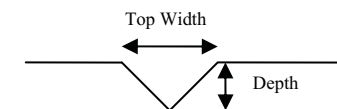
**TYPE OF OUTLET** (Mark all that apply)

☒ **Open Channel Spillway**  
☐ Trapezoidal  
☐ Triangular  
☒ Rectangular  
☐ Irregular

TRAPEZOIDAL

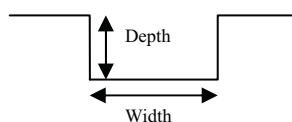


TRIANGULAR

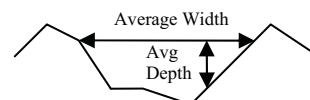


2.5 ft depth  
5 ft bottom (or average) width  
5 ft top width

RECTANGULAR



IRREGULAR

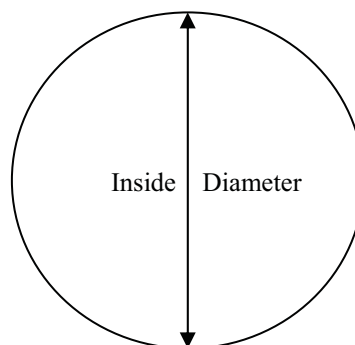


☐ **Outlet**

☐ inside diameter

Material

☐ corrugated metal  
☐ welded steel  
☐ concrete  
☐ plastic (hdpe, pvc, etc.)  
☐ other (specify) \_\_\_\_\_



Is water flowing through the outlet? YES \_\_\_\_\_ NO \_\_\_\_\_

☒ **No Outlet**

☐ **Other Type of Outlet (specify)** \_\_\_\_\_

The Impoundment was Designed By Commonwealth Associates, Jackson, Michigan

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[illegible]

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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[illegible]

If so, which method (e.g., piezometers, gw pumping,...)? \_\_\_\_\_

If so Please Describe :

EPA Form XXXX-XXX, Jan 09

**BRUCE MANSFIELD POWER STATION – SHIPPINGPORT, PA**  
**SOUTH LOW DISSOLVED SOLIDS POND**

Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.

No.

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Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?

No.

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From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?

No.

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Site Name: Bruce Mansfield Power Station	Date: 09-01-2009
Unit Name: West High Dissolved Solids (HDS) Pond	Operator's Name: First Energy
Unit I.D.: NA	Hazard Potential Classification: High <input type="checkbox"/> Significant <input checked="" type="checkbox"/> Low <input type="checkbox"/>
Inspector's Name: John Osterle / Kevin Cass	

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?		Quarterly	18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?		783± ft	19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?		NA	20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?		NA	Is water entering inlet, but not exiting outlet?		NA
5. Lowest dam crest elevation (operator records)?		787 ft	Is water exiting outlet, but not entering inlet?		NA
6. If instrumentation is present, are readings recorded (operator records)?		NA	Is water exiting outlet flowing clear?		NA
7. Is the embankment currently under construction?		X	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation, stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?		X
9. Trees growing on embankment? (If so, indicate largest diameter below)		X	At isolated points on embankment slopes?		X
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?	X		From downstream foundation area?		X
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		NA
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?		X
17. Cracks or scarps on slopes?		X	24. Were Photos taken during the dam inspection?	X	

**Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.**

Inspection Issue #

Comments

#1. Quarterly inspection is performed by GAI Consultants, Inc. Fourth quarter inspection includes summary for entire year. PADEP performs an inspection every 2 years.

#2. Daily water level are not recorded for the HDS pond. Only the LDS ponds.

#3. The decant pipe and intake structure has been deactivated (18" dia. vitrified clay pipe).

#4. Spillway consists of a weir which flows between the North LDS Pond and the South LDS Pond. One pond is always drained so that it can store discharge from the other pond. Water is discharged from the pond via pumping.

#6. No instrumentation.

#8. According to First Energy, the foundations were excavated to rock. Ponds were constructed prior to the operation of the plant. Therefore, there was no fly ash available during construction.

#10 & #17. Minor cracks were observed in the top asphalt layer. These cracks do not extend into the bottom asphalt layer or the embankment.

**Coal Combustion Waste (CCW)  
Impoundment Inspection**Impoundment NPDES Permit # NA  
Date 09-01-2009INSPECTOR John Osterle / Kevin CassImpoundment Name West High Dissolved Solids (HDS) Pond  
Impoundment Company First Energy  
EPA Region III  
State Agency (Field Office) Addresss Pennsylvania Department of Environmental Protection  
909 Elmerton Avenue, Harrisburg, PA 17110Name of Impoundment \_\_\_\_\_  
(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)New \_\_\_\_\_ Update XIs impoundment currently under construction?            Yes            NoIs water or ccw currently being pumped into the impoundment?            X

\* Slurry is trucked in and dumped into HDS pond.

**IMPOUNDMENT FUNCTION:** Primary: Ash Storage, Secondary: SedimentationNearest Downstream Town : Name Midland, PADistance from the impoundment about 2 miles downstream

Impoundment

Location: Longitude 40 Degrees 38 Minutes 4.54 Seconds  
Latitude 80 Degrees 24 Minutes 40.62 Seconds  
State PA County BeaverDoes a state agency regulate this impoundment? YES X NO           If So Which State Agency? Pennsylvania Department of Environmental Protection, Bureau of  
Waterways Engineering, Division of Dam Safety

**HAZARD POTENTIAL** (In the event the impoundment should fail, the following would occur):

\_\_\_\_\_ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

**\_\_\_\_\_ LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

**× SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

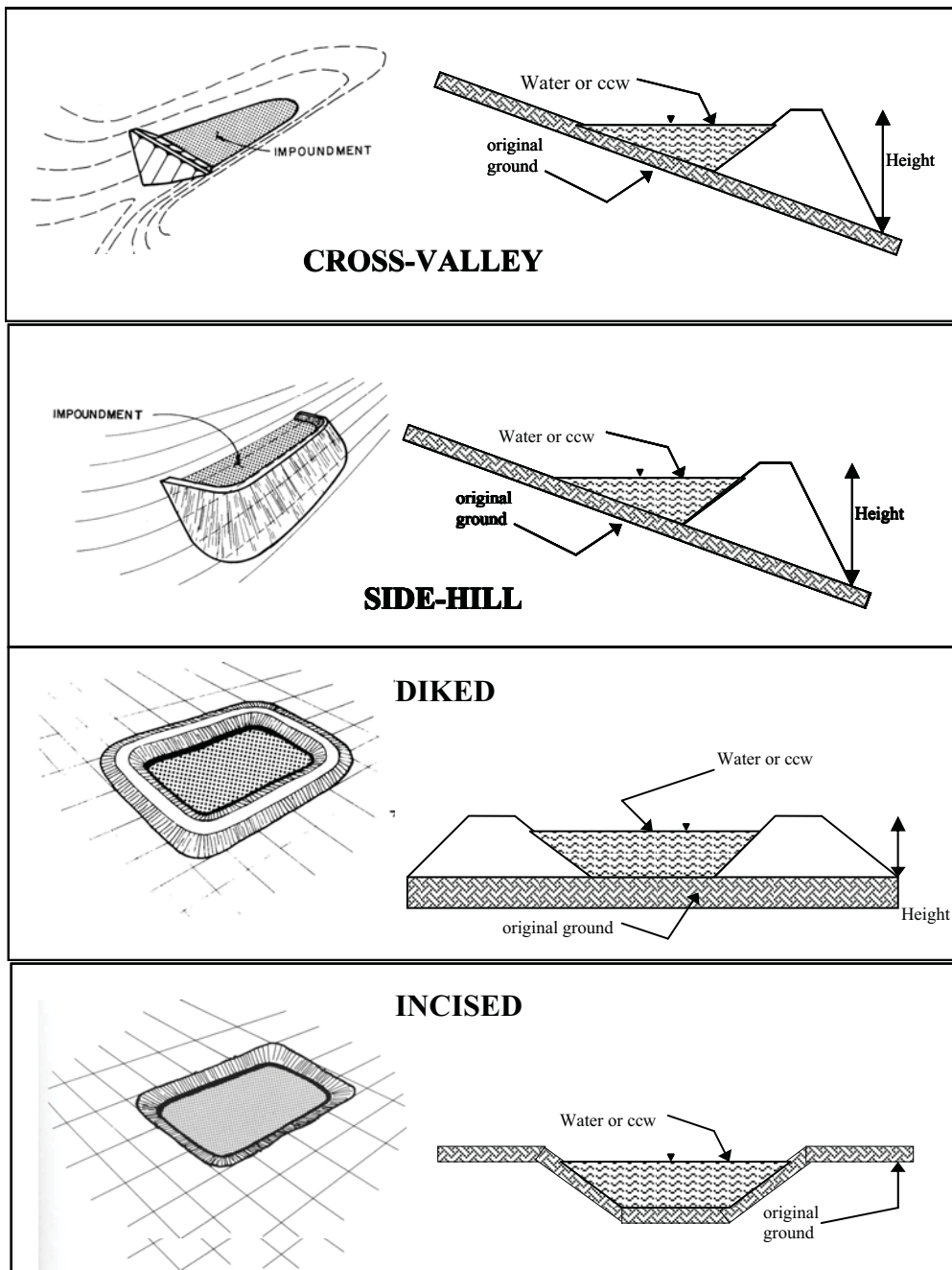
**HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

**DESCRIBE REASONING FOR HAZARD RATING CHOSEN:**

Refer to State classification of C-2, High hazard Structure per PA-DEP letter (August 18, 1994) and 25PaCode105.91 Classification of Dams and Reservoirs. State's classification is equivalent to the Environmental Protection Agency's (EPA) Significant Hazard rating.

[illegible]

# **CONFIGURATION:**



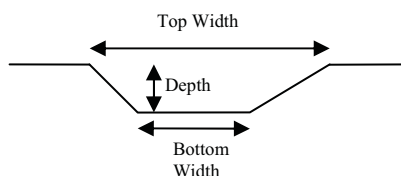
<input type="checkbox"/>	Cross-Valley		
<input checked="" type="checkbox"/>	Side-Hill	*The South end of the impoundment is a concrete wall.	
<input type="checkbox"/>	Diked		
<input type="checkbox"/>	Incised	(form completion optional)	
<input type="checkbox"/>	Combination Incised/Diked		
Embankment Height	27 (max)	feet	Embankment Material
Pool Area	2.9	acres	Liner
Current Freeboard	4±	feet	Liner Permeability
			Soil with asphalt on crest and downstream slope
			Asphlat
			10 <sup>-7</sup> cm/s (estimated)

**TYPE OF OUTLET** (Mark all that apply)

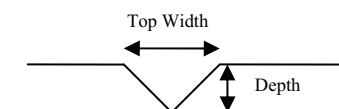
**Open Channel Spillway**

- ☐ Trapezoidal  
☐ Triangular  
☐ Rectangular  
☐ Irregular

TRAPEZOIDAL

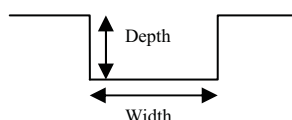


TRIANGULAR

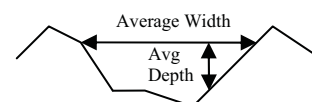


- ☐ depth  
☐ bottom (or average) width  
☐ top width

RECTANGULAR



IRREGULAR

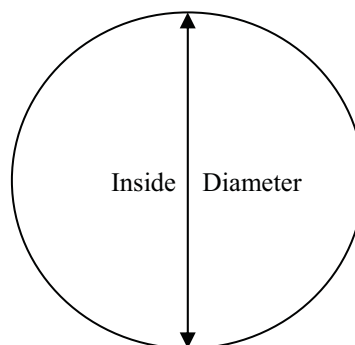


**Outlet**

- ☐ inside diameter

**Material**

- ☐ corrugated metal  
☐ welded steel  
☐ concrete  
☐ plastic (hdpe, pvc, etc.)  
☐ other (specify) \_\_\_\_\_



Is water flowing through the outlet? YES \_\_\_\_\_ NO \_\_\_\_\_

☒ **No Outlet**

☐ **Other Type of Outlet (specify)** \_\_\_\_\_

The Impoundment was Designed By Commonwealth Associates, Jackson, Michigan



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IF So Please Describe: \_\_\_\_\_

[illegible]

If so, which method (e.g., piezometers, gw pumping,...)? \_\_\_\_\_

If so Please Describe :

EPA Form XXXX-XXX, Jan 09

**BRUCE MANSFIELD POWER STATION – SHIPPINGPORT, PA**  
**WEST HIGH DISSOLVED SOLIDS POND**

Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.

No.

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Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?

No.

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From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?

No.

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Site Name: Bruce Mansfield Power Station	Date: 09-01-2009
Unit Name: North Low Dissolved Solids (LDS) Pond	Operator's Name: First Energy
Unit I.D.: NA	Hazard Potential Classification: High <input type="checkbox"/> Significant <input checked="" type="checkbox"/> Low <input type="checkbox"/>
Inspector's Name: John Osterle / Kevin Cass	

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?		Quarterly	18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?		746 ft	19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?		NA	20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?		759.5± ft	Is water entering inlet, but not exiting outlet?		NA
5. Lowest dam crest elevation (operator records)?		762 ft	Is water exiting outlet, but not entering inlet?		NA
6. If instrumentation is present, are readings recorded (operator records)?		NA	Is water exiting outlet flowing clear?		NA
7. Is the embankment currently under construction?		X	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation, stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?		X
9. Trees growing on embankment? (If so, indicate largest diameter below)		X	At isolated points on embankment slopes?		X
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?	X		From downstream foundation area?		X
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		NA
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?		X
17. Cracks or scarps on slopes?		X	24. Were Photos taken during the dam inspection?	X	

**Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.**

Inspection Issue #

Comments

- #1. Quarterly inspection is performed by GAI Consultants, Inc. Fourth quarter inspection includes summary for entire year. PADEP performs an inspection every 2 years.
- #2. Daily water level readings are recorded by operations department for LDS ponds only. Pond was drained at time of inspection, with 1 to 7 feet of slurry.
- #3. The decant pipe and intake structure has been deactivated (18" dia. vitrified clay pipe).
- #4. Spillway consists of a weir which flows between the North LDS Pond and the South LDS Pond. One pond is always drained so that it can store discharge from the other pond. Water is discharged from the pond via pumping.
- #6. No instrumentation.
- #8. According to First Energy, the foundations were excavated to rock. Ponds were constructed prior to the operation of the plant. Therefore, there was no fly ash available during construction.
- #10 & #17. Minor cracks were observed in the top asphalt layer. These cracks do not extend into the bottom asphalt layer or the embankment.

**Coal Combustion Waste (CCW)  
Impoundment Inspection**Impoundment NPDES Permit # NAINSPECTOR John Osterle / Kevin CassDate 09-01-2009Impoundment Name North Low Dissolved Solids (LDS) PondImpoundment Company First EnergyEPA Region IIIState Agency (Field Office) Addresss Pennsylvania Department of Environmental Protection909 Elmerton Avenue, Harrisburg, PA 17110

Name of Impoundment \_\_\_\_\_

(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New \_\_\_\_\_ Update X

Is impoundment currently under construction?

Yes

No

X

Is water or ccw currently being pumped into the impoundment?

X**IMPOUNDMENT FUNCTION:** Primary: Ash Storage, Secondary: Sedimentation, Tertiary: WasteNearest Downstream Town : Name Midland, PADistance from the impoundment about 2 miles downstream

Impoundment

Location:

Longitude 40 Degrees 38 Minutes 11.16 SecondsLatitude 80 Degrees 24 Minutes 47.92 SecondsState PA County BeaverDoes a state agency regulate this impoundment? YES X NO \_\_\_\_\_If So Which State Agency? Pennsylvania Department of Environmental Protection, Bureau ofWaterways Engineering, Division of Dam Safety

**HAZARD POTENTIAL** (In the event the impoundment should fail, the following would occur):

\_\_\_\_\_ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

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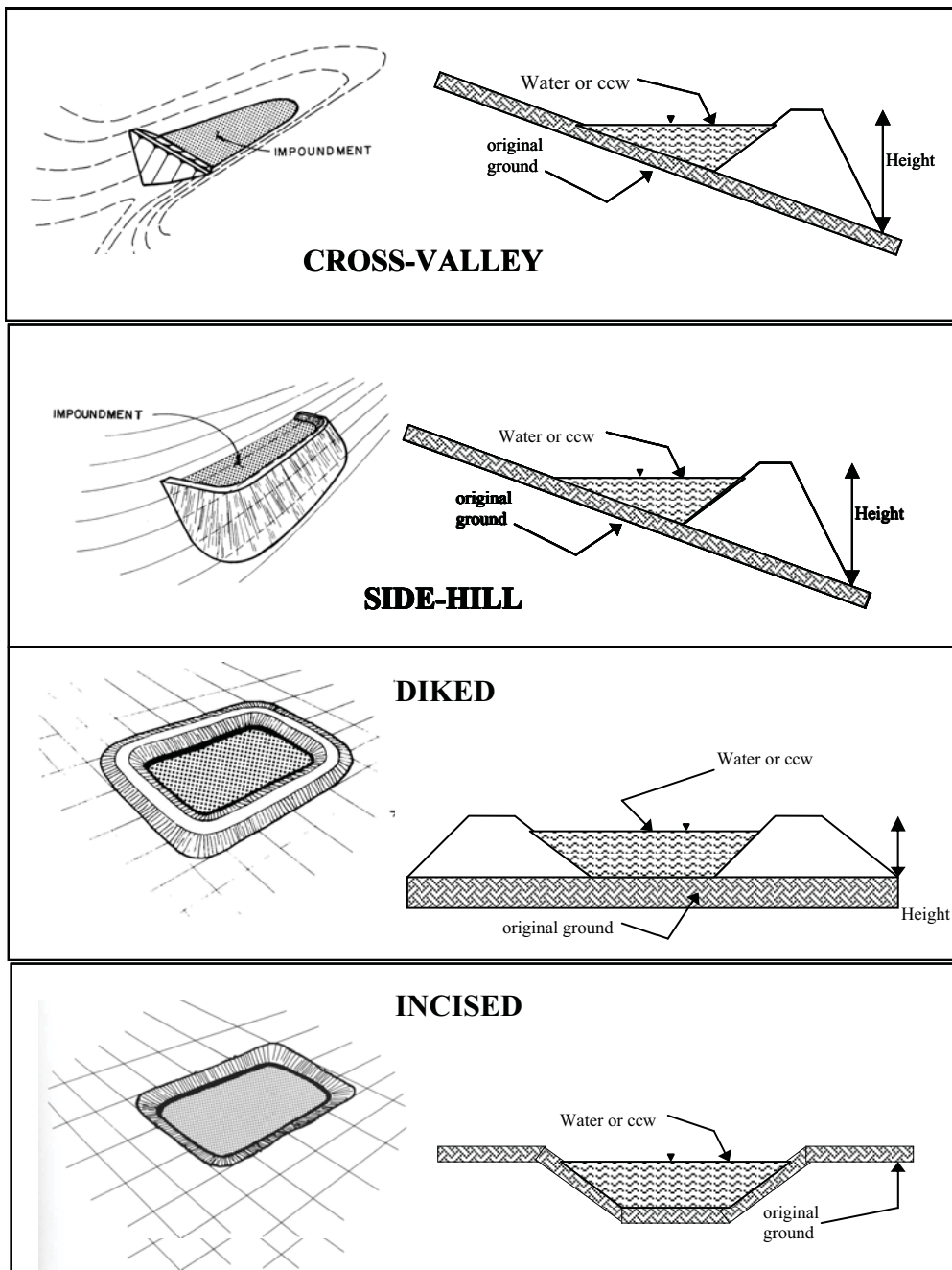
**HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

**DESCRIBE REASONING FOR HAZARD RATING CHOSEN:**

Refer to State classification of C-2, High hazard Structure per PA-DEP letter (August 18, 1994) and 25PaCode105.91 Classification of Dams and Reservoirs. State's classification is equivalent to the Environmental Protection Agency's (EPA) Significant Hazard rating.

[illegible]

# **CONFIGURATION:**



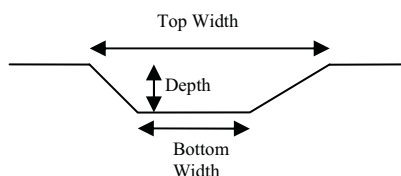
<input type="checkbox"/>	Cross-Valley		
<input checked="" type="checkbox"/>	Side-Hill		
<input type="checkbox"/>	Diked		
<input type="checkbox"/>	Incised (form completion optional)		
<input type="checkbox"/>	Combination Incised/Diked		
Embankment Height	32 (max)	feet	Embankment Material <u>Soil with asphalt on crest and downstream slope</u>
Pool Area	3.2	acres	Liner <u>Asphlat</u>
Current Freeboard	16	feet	Liner Permeability <u>10<sup>-7</sup> cm/s (estimated)</u>



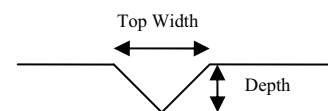
**TYPE OF OUTLET** (Mark all that apply)

☒ **Open Channel Spillway**  
☐ Trapezoidal  
☐ Triangular  
☒ Rectangular  
☐ Irregular

TRAPEZOIDAL

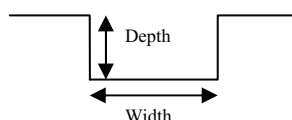


TRIANGULAR

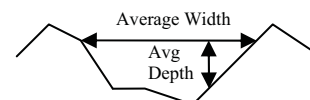


2.5 ft depth  
5 ft bottom (or average) width  
5 ft top width

RECTANGULAR



IRREGULAR

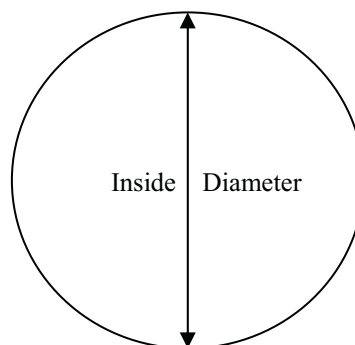


☐ **Outlet**

☐ inside diameter

Material

☐ corrugated metal  
☐ welded steel  
☐ concrete  
☐ plastic (hdpe, pvc, etc.)  
☐ other (specify) \_\_\_\_\_



Is water flowing through the outlet? YES \_\_\_\_\_ NO \_\_\_\_\_

☒ **No Outlet**

☐ **Other Type of Outlet (specify)** \_\_\_\_\_

The Impoundment was Designed By Commonwealth Associates, Jackson, Michigan

US EPA ARCHIVE DOCUMENT

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This image shows a single page of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

US EPA ARCHIVE DOCUMENT

[illegible]



**BRUCE MANSFIELD POWER STATION – SHIPPINGPORT, PA**  
**NORTH LOW DISSOLVED SOLIDS POND**

Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.

No.

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Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?

No.

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From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?

No.

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